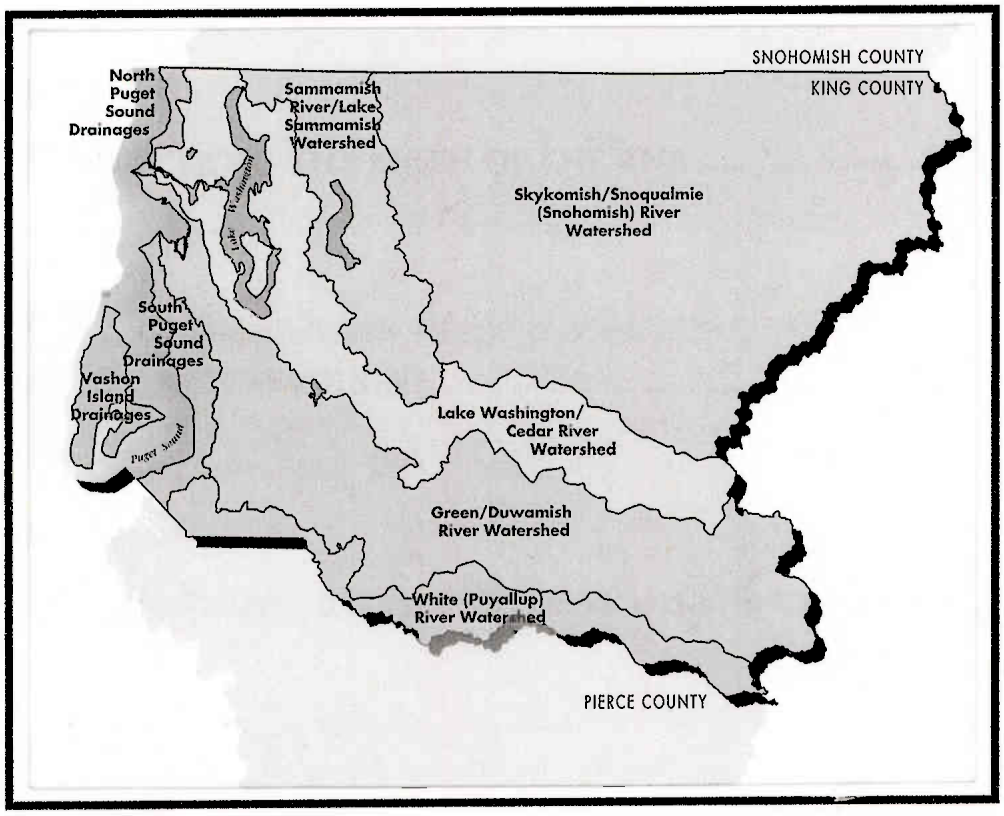
Report and Recommendations



Regional Needs Assessment

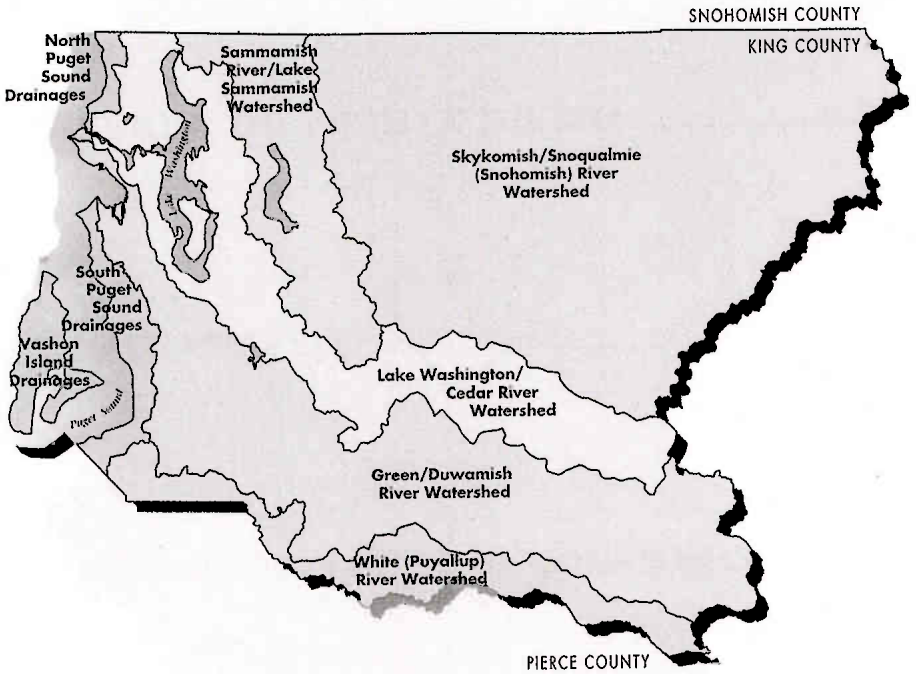
for Surface Water Management, King County, Washington

July 20, 1995

Regional Needs Assessment for SURFACE WATER MANAGEMENT

R N A

The Watersheds of King County



- The Skykomish/Snoqualmie (Snohomish) River Watershed
- The Sammamish River/Lake Sammamish Watershed
- The Lake Washington/Cedar River Watershed
- The Green/Duwamish River Watershed
- The White (Puyallup) River Watershed
- Direct Puget Sound Drainages including Vashon Island

July 1995

Regional Needs Assessment

Contents

Chapter I

Executive Summary

The Regional Needs Assessment (RNA) was started in 1994 to define the needs, priorities and responsibilities for surface water management in King County. It has been a collaborative decision making process with surface water management staff from jurisdictions throughout King County, staff from other involved parties such as the King Conservation District, elected officials, tribal governments and stakeholders.

The interjurisdictional effort assessed the challenges we face and the successes we have had, not only in managing the physical environment, but also in the way our governance and funding structures relate to that environment. The physical environment was examined by traditional water management categories: drainage and conveyance, major river flooding, water quality, and fish habitat.

The recommendations for change center on themes of collaboration, simplicity, and accountability. A number of new approaches to surface water funding are suggested. It is important to recognize that none of these ideas for new or reallocated funding raise enough money to pay for all our surface water needs. But they do constitute a reasonable beginning.

Recommendation 1:
Acknowledge that certain services are best handled individually by local governments; other services are better provided through coordinated approaches:

A. Drainage and conveyance services are the responsibility of each individual jurisdiction. But where drainage crosses jurisdictional boundaries or impacts downstream flows, coordination must occur between the affected jurisdictions.

B. Fish habitat, water quality and river flooding problems generally need to be coordinated across jurisdictional lines to successfully set priorities and determine who should carry out solutions.

Recommendation 2:
Manage collaboratively by watershed.

Recommendation 3:
Divide the County into six watersheds.

Green/Duwamish River
Cedar River/Lake Washington
Lake Sammamish/Sammamish River
Snoqualmie/Skykomish Rivers
White River
Puget Sound Direct Drainage

Recommendation 4:
Create watershed forums and sub-watershed workgroups.

Recommendation 5:
Designate the Regional Water Quality Committee (RWQC) as the regional policy focal point for watershed-based management.

Recommendation 6:
Fish are a regional resource; additional regional funds need to be provided to protect and restore fish habitat.

A. Create $5 million per year Regional Fish Fund (RFF) from one or more of the suggested funding options.
B. Initially, return 80% of funds to watershed where raised; transition to needs-based distribution.

Recommendation 7:

Benefiting watersheds should provide funding support for construction and maintenance of flood hazard reduction projects. Expenditures of County River Improvement Fund Levy revenues should focus on services with more regional benefits.

Recommendation 8:

Provide short term funding to get started on the RNA recommendations:

A. King County should fund watershed forum startup through 1998.
B. King Conservation District assessment should be extended one year to start up RFF.
C. Cities should continue to contribute staff to watershed efforts.

Chapter II

Introduction: The Birth of The RNA

Surface water can be thought of in two ways: as a problem to be managed, and as a resource to be protected and used wisely. Surface water management utilities deal with both aspects of surface water. Most see their core responsibility as building and maintaining local drainage and conveyance systems that protect property, human health and the environment by controlling urban stormwater run-off and localized flooding. However, most also directly or indirectly address the challenge of resource protection and enhancement.

Beginning in 1994 a working partnership developed between King County, Seattle, and the suburban cities to address both problems and opportunities posed by surface water. Called the Regional Needs Assessment for Surface Water Management (RNA), the effort brought together surface water management staff from governments within King County to:

- Identify and understand surface water management needs and challenges, both natural and human; and

- Agree on the changes needed to allow both King County and its cities to deliver and fund services to meet these needs more effectively.

Assessing Surface Water Needs

The problems and issues of surface water management in King County today are complex and interrelated. Historic changes in natural systems and recent upswings in the pace of urban growth form an important part of the picture. Those who seek to manage surface water resources in King County deal with a host of considerations:

- Approximately 10% of King County's land area is mapped as a flood hazard. Flood control measures of the past such as diking and channeling

allowed for development in floodplains. Now we have a responsibility to maintain and upgrade these systems if we continue to allow people to settle and do business there. During the last 10 years there have been four major flood disasters, damaging or destroying more than 1,000 homes and businesses.

- Salmon and other migratory fish species are declining. For instance, the sockeye run in Lake Washington has declined from more than 350,000 fish in the late 1980's to less than 100,000 in the mid-1990's. Fish are an irreplaceable part of Northwest life and culture and provide a livelihood for many Northwest residents. Understanding the reasons for, and acting to reverse this decline, are major challenges.

- Management responsibilities for specific aspects of water-related resources are split among different levels of government, and among various agencies at each level. Within one watershed, for example, the Department of Health may have responsibility for groundwater quality and septic system compliance, the State Department of Fish and Wildlife for a fish ladder, the Department of Metropolitan Services (formerly Metro) for sewage and water quality, and a collection of local jurisdictions for drainage systems and localized flood control. One citizen coalition counted 79 different government agencies with responsibilities in their watershed.

- In some cases, priorities are being set and dollars being spent by jurisdictions and agencies independent of one another, so the most critical needs are not necessarily being met. As a region, we lack unified goals and performance measures to set direction and measure progress. No one is responsible or accountable for tracking success or failure at a regional or even a watershed level.

  For instance, during the past ten years more than $350 million has been spent to address problems in the lower Duwamish River, and $250 million more is scheduled during the next decade. Yet in the critical upper reaches of that same watershed, only a few million dollars have been applied to surface water issues.

- Incorporations and annexations of urbanizing unincorporated areas are increasing, supported by the countywide policies adopted under the Growth Management Act. The number of jurisdictions responsible for surface waters is increasing, making the challenge of coordination greater.

From these complex issues, several key questions emerge:

- How can we, as a region, support economic growth while protecting valuable natural resources in urban and rural areas?

- How can we work together as local jurisdictions to manage important resource issues which extend beyond our individual boundaries?

- How can we provide incentives and funding for local initiatives?

- How can jurisdictions work together to ensure that their constituencies are getting the most effective surface water management services for their tax dollars?

- How can communities in watersheds participate and contribute to problem-solving?

Chapter III

What Needs Do We See?

Before contemplating new approaches to how we manage surface water within King County, it is important to understand the problems we face and the successes we have had. Our challenges lie not only in managing the physical environment, but also in the way our governance and funding structures relate to that environment.

The maps in the accompanying Atlas of the Watersheds of King County, Washington detail the challenges we face watershed by watershed. A more general overview follows.

The Physical Environment: Findings and Challenges

Surface water management utilities have been established in most urbanized parts of King County, and efforts to handle local drainage problems have, in general, been admirable. Metro has handled sewage and industrial wastes well. But in spite of these successes, fish runs in King County are in serious decline, water quality in some of our lakes and streams is degraded, and flooding is still a risk in our major river systems.

Explanations for our remaining problems are discussed in this chapter, broken down into traditional water management categories, namely 1) drainage and conveyance, 2) major river flooding, 3) water quality and 4) fish habitat. Ultimately, these categories must be managed in an integrated fashion. However, examining each one individually provides a good starting point for understanding the problem.

Drainage and Conveyance Needs

Surface water drainage, much like tap water or electricity, is a public service that can remain largely unnoticed -- until it doesn't work. The need for drainage services arises from the presence of impervious surfaces that have replaced vegetation and soft soil. Our drainage systems carry excess rainwater from our roofs, lawns, streets, parks, and business properties into our lakes, streams, rivers, and Puget Sound.

Drainage may follow a variety of courses: over open land surfaces, open ditches, through drainage tiles, or collection from curbs and gutters to extensive pipe systems. Drainage systems are distinct from sewer and wastewater collection systems, except for a few remaining areas in Seattle where surface water drains are combined with wastewater pipes.

According to the stormwater managers from King County jurisdictions who were interviewed during the RNA process, solving drainage and conveyance problems continues to be their top surface water management priority. These problems range from backyard flooding to major sections of downtown under water. Needs include:

- Updating antiquated or nonfunctional infrastructure
- Completing infrastructure inventories
- Connecting and upgrading systems in new annexation areas
- Developing new infrastructure such as storage ponds and pipe systems
- Generating additional funding for backlogged projects
- Improving maintenance programs

Conditions vary considerably from city to city. Bellevue has a drainage system largely in place, while the newly-incorporated City of Burien is only beginning to assess its needs. In general, newly incorporated cities, small cities, and cities located in rural parts of the county tend to give highest priority to the drainage issues cited above. Long-established and urbanized incorporated areas with fully-developed drainage systems tend to place less emphasis on basic systems. But they too face challenges and the possibility of significant future expenditures related to local drainage.

Anticipated future expenditures are, indeed, significant. A survey with responses from 19 jurisdictions representing 88 percent of the county's population indicated that it would take more than $450 million in capital investment over the next 20 years to fund remaining local drainage and conveyance needs for all jurisdictions ($220 million of the total is for trunk lines and collectors in the City of Seattle alone).

Major River Flooding

Approximately 10% of the county's land area is classified as a flood hazard area. Sixteen cities and towns are located along King County's six major rivers: the Green, White, Cedar, Skykomish, Snoqualmie and Sammamish. The rivers are all prone to overflowing their banks after periods of high rainfall and/or snowmelt.

When flooding occurs near homes or businesses, it threatens human health, safety and property. Annualized damages in the Snoqualmie area alone are estimated at $980,000. Levees along the Lower Green River protect more than $3 billion in development, including Southcenter Mall, a major Boeing facility, numerous business parks, and private residences.

Historically, King County has been the primary provider of flood hazard reduction services along the major rivers. In contrast to local drainage services, which are provided within local service areas, the county has carried out major river flood hazard reduction activities in both unincorporated areas and cities.

Cities also provide flood hazard reduction services, including planning and regulation, flood warning and emergency response, and locally-initiated capital and maintenance projects. Cities have used local stormwater service charge revenues and federal and state grant funds.

The current arrangements for service provision result from the County's role in constructing capital projects funded by countywide bonds during the 1960's and 1970's. However, as cities continue to grow and expand staffing

and resources for implementing surface water management activities, there is the need to re-evaluate existing service provision, and determine the most efficient and effective arrangement for providing services.

Funding support for major river flood hazard reduction comes from four major sources:

- The River Improvement Fund (RIF) levy (a countywide property tax levy);
- The Green River Flood Control Zone District levy (a property tax levy collected within the boundaries of the District in the Lower Green River Basin);
- City funds; and
- Federal and State grant funds.

The RIF levy currently generates approximately $1.9 million per year to support flood hazard reduction efforts along the major rivers in King County. Because the RIF levy is collected on the basis of assessed value, the amount of revenue collected from urban areas is substantially higher than that collected from rural areas.

Approximately $500,000 of annual RIF revenue goes toward repairing flood and erosion control facilities, such as levees, revetments, and pump stations. At this level, the county is only able to maintain a fraction of its facilities on an annual basis. Retrofits of facilities to reduce chronic damages is only possible when the county can leverage federal and state funds. The King County Flood Hazard Reduction Plan, adopted in 1993, identified more than $300 million in capital needs, of which $72 million are classified as high priority.

Challenges and opportunities facing the county and the cities for provision and funding of major river flood hazard reduction services include the following:

- Preventing new development in flood and erosion hazard areas along the major river systems.

- Reducing recurring maintenance costs by reconstructing facilities so they are less susceptible to damage in the future.

- Maintaining existing flood and erosion control facilities to consistent standards.

- Coordinating flood hazard reduction efforts with other surface water management activities such as fish habitat enhancement, wetlands management and stormwater management, to achieve multiple benefits.

- Ensuring that land uses, development standards and flood hazard reduction projects in one jurisdiction do not exacerbate flooding in another jurisdiction.

- Establishing more adequate and equitable funding mechanisms to support maintenance of flood control facilities and new flood hazard reduction projects.

Water Quality

Water quality is measured by analyzing constituents such as toxins, metals, sediment loads, temperature, dissolved oxygen, nutrients and pathogens within water and sediments.

Problems with water quality can pose a threat to human and ecosystem health. Eating shellfish and bottom fish from near-shore areas of Puget Sound with contaminated sediments increases the risk of cancer. Organisms found in some marine and fresh waters can cause "swimmers itch" and gastrointestinal illness.

Water quality factors that affect fish include sediments carried in runoff due to excessive erosion, low levels of dissolved oxygen and high temperatures due to the removal of trees and other vegetation from stream corridors, and increased organic matter and nutrients in streams and lakes.

In the past, the main source of water pollution in King County was untreated sewage and direct discharges from industries. This type of pollution – the kind that "comes out of a pipe" – is commonly called "point source pollution." The formation of Metro and the subsequent construction of sewage treatment plants and introduction of industrial treatment programs proved successful in eliminating most major sewage and contamination problems.

The combined sewage/stormwater overflows that occur in certain parts of Elliott Bay and the Ship Canal, and sewage from treatment plant outfalls in deep parts of Puget Sound, constitute the remaining sources of point pollution. Metro's industrial waste inspection programs have helped address the problem of discharge of untreated industrial pollutants into the sewage system.

Success in curbing point source pollution, along with significant urban growth over the past decade, mean that the number one cause of water pollution today is *non-point* pollution. This form of pollution cannot be traced to any single source. Instead, it comes from activities related to commerce, agriculture, forestry, transportation and residential development. Pet wastes, lawn fertilizers and the fallout from car exhaust all contribute in small but cumulative ways. These chemicals, pesticides, nutrients, oils and other pollutants are picked up by runoff during a storm and carried to the nearest receiving body of water.

In recent years, public understanding about the need to keep pollutants out of storm drainage systems has grown significantly. Business outreach programs and hazardous waste management plans have also helped in controlling pollutants at the source, so they do not end up washing into local waterways or urban storm drains that ultimately flow to waterways.

Few significant threats remain to human health, yet we continue to spend millions of dollars to improve water quality, in some cases with no measurable benefits. The major challenges we face in water quality are more institutional and political than physical:

- State and federal mandates drive local regulatory efforts in water quality. Local jurisdictions question the validity of these requirements, and do not

always agree that meeting them is the most effective way of using scarce water-quality improvement dollars.

- Multiple jurisdictions and agencies currently have a hand in managing the same resource, frustrating businesses and citizens who expect timely action.

- Regional goals and performance measures for water quality have not been agreed upon.

- Responsibility for addressing regional goals has not been determined.

- The science of non-point pollution management is still new, and gaps exist in our understanding of impacts and solutions. The known problems and threats to human health may be limited, but "unknowns" are unlimited.

Fish Habitat

Salmon and other migratory fish species are an irreplaceable part of Northwest life and culture. The importance of these fisheries to the culture and economy of this area, especially for the tribal governments, cannot be overemphasized. Salmon fisheries also provide a livelihood for many other Northwest residents. As Northwesterners are confronted with increasingly bleak figures about the status of these runs, "Save our Salmon" has become a popular rallying cry. For instance, the sockeye run in Lake Washington has declined from more than 350,000 fish in the late 1980's to less than 100,000 in the mid-1990's.

The causes of the decline are numerous and complex. Reversing the trend will require action on many fronts. Ocean harvesting, dam-building, introduction of cultured stocks and other factors outside the control of local jurisdictions clearly play significant roles. Increasing density and land development, which is under local control, has helped reduce aquatic habitats essential for all fish stocks.

Local jurisdictions, acting in concert with one another and with other interested parties, can make great strides in fish habitat protection and enhancement. Many programs and projects in King County, such as Waterways 2000, King County basin stewardship programs, urban stream restoration projects and projects sponsored by fisheries-related groups and timber companies, are already at work restoring and protecting stream and river corridors.

The geography and land uses in King County provide both advantages and challenges in habitat protection. King County's river systems drain from the Cascade Mountains in the east to the Puget Sound lowlands in the west. Each river system begins in undeveloped mountains and flows through forested areas into rural and agricultural lowlands and ultimately into suburban and urban residential and industrial zones prior to entering Puget Sound.

The low level of development in the upper watersheds (including the three protected water supply watersheds in the upper Tolt, Cedar and Green River systems) helps maintain historic flow patterns and ensure the clean, cool water that fish need. At the same time, logging practices in the forested areas, rural and agricultural development in the middle of the watersheds, and the increasing urbanization of the lower watersheds create significant risk for fish using these areas as spawning, migration channels and rearing habitats.

Logging, agriculture, and urban development all reduce natural groundcover and increase the amount of cleared and impervious land surface. A larger proportion of rainfall runs directly into streams instead of into soil and groundwater storage. Stream flows and flood potential increase during winter and decrease during summer. Chemicals used or generated by people and cars wash directly into streams and lakes instead of being absorbed, caught and filtered by soil and vegetation.

Challenges in fish protection include:

- Defining regional goals to protect and restore fish habitat, recognizing that priorities must be set due to financial restrictions.

- Educating people about the connections between economic and social activities and fish habitat conditions, so that we can make informed choices when trade-offs are necessary.

- Demonstrating to local governments and interest groups how fish protection can be fostered through habitat acquisition and restoration programs.

- Finding a way to work together cooperatively so priorities can be set and implementation activities carried out with the cooperation of all key players in the watershed.

- Determining who should be responsible for providing the services that affect fish habitat, such as policy-setting; monitoring and environmental assessment; regulatory response, development and enforcement; tax and other incentive programs; education and stewardship programs; and capital facility design, funding, construction, operation and maintenance.

Governmental and Regulatory Concerns

The shape of government in King County has undergone significant change in the past few years, affecting our ability to manage surface water effectively. The merger of King County and Metro governments on January 1, 1994 combined surface water management in unincorporated King County and Metro's water quality services into the hands of a single governmental entity. Adoption of county-wide comprehensive planning policies supporting annexations and incorporation of urbanizing areas is shrinking the area in which King County delivers (and charges for) surface water management services. An increasing amount of responsibility for provision of these services is falling to cities, many of them small and/or newly incorporated.

Governments at other levels – state, federal and tribal – also have responsibility for what happens with fish and water resources. These governments and agencies have regulatory authority, as well as financial and

other resources that can be important in the solution of problems. Each agency has its own mandate, and tends to view problems and solutions through its own "lens," adding to the difficulty of achieving a common focus.

The sheer number and diversity of governmental interests poses a challenge. The need for coordination and agreement on common goals is apparent. The large and growing number of governmental players increases the potential for gaps and overlaps in service.

Problems cited by stakeholder participants in an RNA roundtable discussion included:

- Multiple regulators at multiple levels, making it hard for the general public, the business community, and developers alike to get answers to and action on surface water issues.

- Too much unfocused planning, and too little action. Not enough governmental resources are going into actually protecting our surface waters.

- Too much hierarchy and too little collaboration.

- Lots of "fingers in the pie" with no accountability for achieving results.

Changes occurring in King County government represent an opportunity for fresh thinking and new approaches to problems. Roundtable participants pointed to ways in which governments and other players could collaborate to provide more cost-effective or efficient service. They also saw collaboration as essential for setting and attaining goals to protect regional resources and for dealing effectively with state and federal regulators. A related challenge is how to form more collaborative approaches between multiple governments, community and special interest groups without inviting paralysis.

Funding Issues

The complex and changing web of institutional responsibility for surface water is accompanied by an array of funding challenges. Primary findings of the RNA in the area of funding include:

- Needs exceed available resources. Local jurisdictions find it difficult to fund the most basic drainage and conveyance requirements. Obtaining additional resources for other surface water management services is tougher still.

- The region lacks mechanisms to set priorities to guide existing funds toward the most critical needs. In some cases, sizable sums of money are spent complying with state or federal regulations, while more pressing problems go unfunded.

- Substantial revenue sources may not exist in the localities where problems are the most significant or the resources are the most important. This is particularly true of river flooding and upstream habitat protection areas.

- Possibilities exist for channeling already-appropriated funds into new cooperative programs to achieve greater results with the same dollars.

- Partnerships with community groups in a watershed setting could "leverage" limited public funds by enhancing the opportunity for external public and private grants, and adding the benefit of volunteer labor and other relatively low-cost solutions.